

REMARKS

This Application has been carefully reviewed in light of the Final Office Action mailed February 11, 2004. Claims 1-15, 17-46, and 48-62 are pending in the Application. The Examiner has rejected Claims 1-15, 17-46, and 48-62. Furthermore, to further the prosecution of this application, Claims 1 and 32 have been amended to further clarify what the Applicant believes to be the invention. As discussed below, Applicant believes all pending claims to be allowable over the cited references. Therefore, Applicant respectfully requests reconsideration and full allowance of all pending claims.

Section 103 Rejections

The Examiner rejects 1-15, 17-46, and 48-62 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,223,041 issued to Egner, et al. ("Egner") in view of U.S. Patent No. 6,366,780 issued to Obhan ("Obhan"). For the reasons set forth below, Applicant respectfully disagrees with these rejections.

Claims 1 and 32 are Allowable Over Egner and Obhan

Independent Claim 1, as amended, of the present application recites the following:

A system for allocating bandwidth in a wireless communications network, comprising:

a geo-location tool residing on a computer-readable medium, the geo-location tool operable to:

receive data for a wireless communications network including a plurality of geo-location areas;

estimate bandwidth parameters for a geo-location area based on the data; and

generate, based on the data, a current usage map indicating real-time bandwidth being utilized at the geo-location area, the current usage map being subdivided into a plurality of bins representing the geo-location area, each bin representing the location of a portion of the geo-location area and containing data associated with the corresponding portion of the geo-location area; and

an allocation engine residing on the computer-readable medium, the allocation engine operable to allocate bandwidth in the geo-location area based on its bandwidth parameters.

Independent Claim 32, as amended, recites similar, although not identical, claim limitations.

Claim 1, as amended, recites a geo-location tool operable to "generate, based on the data, a current usage map indicating real-time bandwidth being utilized at the geo-location area, the current usage map being subdivided into a plurality of bins representing the geo-location area, each bin representing the location of a portion of the geo-location area and containing data associated with the corresponding portion of the geo-location area." Claim 32, as amended, recites similar, although not identical, limitations. The Examiner concedes that *Egner* is silent as to a geo-location tool operable to generate, based on the data, a current usage map indicating real-time bandwidth being utilized at the geo-location area. However, the Examiner states that it is apparent that *Obhan* discloses generating a current usage map indicating real-time bandwidth being utilized at the geo-location area. (Final Office Action mailed 2/11/04, Page 2, citing *Obhan*, Col. 5, Lines 15-23). The sections of *Obhan* cited by the Examiner as supporting his position merely disclose that the *Obhan* system receives current demand data and potential demand data from the wireless network. However, nothing in the section cited by the Examiner discloses that a current usage map is generated, let alone that the current usage map is subdivided into a plurality of bins representing the geo-location area, each bin representing the location of a portion of the geo-location area and containing data associated with the corresponding portion of the geo-location area, as recited in amended Claim 1, and similarly, although not identically, in amended Claim 32.

For at least this reason, amended Claims 1 and 32 are allowable over the cited references. Therefore, Applicant respectfully requests reconsideration and allowance of Claims 1 and 32, as well as all claims that depend from those claims.

Claims 2-15, 17- 31, 33-46, and 48-62 are Allowable over *Egner* and *Obhan*

Claims 2-15 and 17-31 incorporate of all the limitations of amended Claim 1, which is allowable over the cited references for the reasons discussed above. Therefore, Claims 2-15 and 17-31 are also allowable over the cited references. In addition, Claims 33-46 and 48-62 incorporate of all the limitations of amended Claim 32, which is allowable over the cited references for the reasons discussed above. Therefore, Claims 33-46 and 48-62 are also allowable over the cited references. Furthermore, Claims 5, 7-9, 12-15, 17-31, 36, 38-40, 43-46, and 48-61 are allowable over the cited references because they each recite additional limitations not disclosed in the cited references, as discussed below.

Regarding Claims 5 and 36, *Egner* and *Obhan* both fail to disclose a geo-location tool operable to estimate bandwidth parameters for the geo-location area on a per service class basis and an allocation engine operable to allocate bandwidth in the geo-location area on the per service class basis based on the bandwidth parameters. The Examiner states that *Obhan* discloses this limitation. (Final Office Action mailed 2/11/04, citing *Obhan*, Col. 23; Lines 1-16 and 45-47). The sections of *Obhan* cited by the Examiner fail to make any reference to using *service class* to estimate bandwidth parameters and allocate bandwidth in the geo-location area, nor has the Examiner provided any explanation of how, in his opinion, the cited section discloses using *service class* to estimate bandwidth parameters and allocate bandwidth in the geo-location area.

For at least this additional reason, Claims 5 and 32 are allowable over the cited references. Therefore, Applicant respectfully requests reconsideration and allowance of Claims 5 and 32.

Regarding Claims 7 and 38, *Egner* and *Obhan* fail to disclose a source map comprising sources of bit usage in the geo-location area. The Examiner cites language in *Obhan* Claim 1 (Col. 23; Lines 1-16) as disclosing such a source map. The sections of *Obhan* cited by the Examiner fail to make any reference to generating a source map comprising sources of bit usage in the geo-location area and to estimate bandwidth parameters for the geo-location area based on the source map, nor has the Examiner provided any explanation of how, in his opinion, the cited section discloses generating a source map comprising sources of bit usage in the geo-location area.

For at least this additional reason, Claims 7 and 38 are allowable over the cited references. Furthermore, because Claims 8-9 and 39-40 depend from and incorporate the limitations of Claims 7 and 38, respectively, Claims 8-9 and 39-40 are also allowable. Therefore, Applicant respectfully requests reconsideration and allowance of Claims 7-9 and 38-40.

Regarding Claims 12 and 43, *Egner* and *Obhan* fail to disclose a subscriber usage profile indicating the probability of a subscriber engaging in a connection in a geo-location area. The Examiner states that *Obhan* discloses this limitation. (Final Office Action mailed

2/11/04, Page 4). The language in *Obhan* cited by the Examiner as disclosing this limitation (*Obhan*, Col. 2; Lines 40-45) does not disclose a subscriber usage profile indicating the probability of a subscriber engaging in a connection in a geo-location area, nor has the Examiner provided any explanation of how, in his opinion, the cited section discloses this element of the present invention. The cited passage merely indicates that the *Obhan* system uses potential usage data to manage the use of the available spectrum according to the operating goals of the system's operator. (*Obhan*, Col. 2; Lines 40-45).

For at least this additional reason, Claims 12 and 43 are allowable over the cited references. Furthermore, because Claims 13-15 and 44-46 depend from and incorporate the limitations of Claims 12 and 43, respectively, Claims 13-15 and 44-46 are also allowable. Therefore, Applicant respectfully requests reconsideration and allowance of Claims 12-15 and 43-36.

Regarding Claims 17, 21, 48, and 52, *Egner* and *Obhan* fail to disclose a current usage map comprising a peak rate for each active connection in a geo-location area. The Examiner states that *Obhan* discloses this limitation. (Final Office Action mailed 2/11/04, Page 4). The language in *Obhan* cited by the Examiner as disclosing this limitation (*Obhan*, Col. 6; Lines 41-49) merely discloses that the *Obhan* system tracks spectrum supply and demand in each corridor and incentivizes use of underutilized spectrums. There is no discussion in *Obhan* of a current usage map comprising a peak rate for each active connection in a geo-location area, nor has the Examiner provided any explanation of how, in his opinion, the cited section discloses a current usage map comprising a peak rate for each active connection in a geo-location area.

For at least this additional reason, Claims 17, 21, 48, and 52 are allowable over the cited references. Therefore, Applicant respectfully requests reconsideration and allowance of Claims 17, 21, 48, and 52.

Regarding Claims 19, 23, 27, 50, 54, and 58, *Egner* and *Obhan* fail to disclose usage or demand maps comprising primary and neighboring server information for each active connection within a geo-location area. The Examiner states that *Obhan* discloses this limitation. (Final Office Action mailed 2/11/04, Page 4). The language in *Obhan* cited by the Examiner as disclosing this limitation (*Obhan*, Col. 6; Lines 16-67) does not, in fact, disclose

usage or demand maps that comprise primary or neighboring server information, nor has the Examiner provided any explanation of how, in his opinion, the cited section discloses usage or demand maps that comprise primary or neighboring server information. The cited passage merely indicates that the *Obhan* system contains an analytical engine that monitors spectrum demand and usage within the corridors and enforces the operating rules of each respective corridor. (*Obhan*, Col. 6; Lines 57-67).

For at least this additional reason, Claims 19, 23, 27, 50, 54, and 58 are allowable over the cited references. Therefore, Applicant respectfully requests reconsideration and allowance of Claims 19, 23, 27, 50, 54, and 58.

Regarding Claims 20 and 51, *Egner* and *Obhan* fail to disclose generating a current demand map for the geo-location area. The Examiner states that *Obhan* discloses this limitation. (Final Office Action mailed 2/11/04, Page 5, citing *Obhan*, Col. 5; Lines 15-23). However, the section of *Obhan* cited by the Examiner merely disclose that the *Obhan* system uses current demand data and potential demand data to provides operating signals to the system, but fails to make any reference to generating a current demand map for the geo-location area. Furthermore, the Examiner has failed to provide any explanation of how, in his opinion, the cited section discloses generating a current demand map for the geo-location area.

For at least this additional reason, Claims 20 and 51 are allowable over the cited references. Furthermore, because Claims 21-23 and 52-54 depend from and incorporate the limitations of Claims 20 and 51, respectively, Claims 21-23 and 52-54 are also allowable. Therefore, Applicant respectfully requests reconsideration and allowance of Claims 20-23 and 51-54.

Regarding Claims 24 and 55, *Egner* and *Obhan* fail to disclose generating an expected demand map for the geo-location area. The Examiner states that *Obhan* discloses this limitation. (Final Office Action mailed 2/11/04, Page 5, citing *Obhan*, Col. 6; Lines 35-40). However, the section of *Obhan* cited by the Examiner merely disclose that the capacity of the *Obhan* system is designed for the peak loading periods in each cell, but fails to make any reference to generating an expected demand map for the geo-location area. Furthermore, the

Examiner has failed to provide any explanation of how, in his opinion, the cited section discloses generating an expected demand map for the geo-location area.

For at least this additional reason, Claims 24 and 55 are allowable over the cited references. Furthermore, because Claims 25-27 and 56-58 depend from and incorporate the limitations of Claims 24 and 55, respectively, Claims 25-27 and 56-58 are also allowable. Therefore, Applicant respectfully requests reconsideration and allowance of Claims 24-27 and 55-58.

Regarding Claims 28 and 59, *Egner* and *Obhan* fail to disclose an interference contribution map indicating the impact on resource usage of supporting various bandwidths at the geo-location area. The Examiner states that *Obhan* discloses this limitation. (Final Office Action mailed 2/11/04, Page 5). The language in *Obhan* cited by the Examiner as disclosing this limitation (*Obhan*, Col. 6; Lines 57-67) does not, in fact, disclose an interference contribution map, let alone an interference contribution map that indicates the impact on resource usage of supporting various bandwidths at a geo-location area. The cited passage merely indicates that when spectrum use exceeds a preset threshold, use of the spectrum is de-incentivized by adjusting the cost of the usage to encourage price-sensitive users to discontinue use to free up spectrum resources. (*Obhan*, Col. 6; Lines 57-67). Furthermore, the Examiner has failed to provide any explanation of how, in his opinion, the cited section discloses an interference contribution map indicating the impact on resource usage of supporting various bandwidths at the geo-location area.

For at least this additional reason, Claims 28 and 59 are allowable over the cited references. Furthermore, because Claims 29-30 and 60-61 depend from and incorporate the limitations of Claims 28 and 59, respectively, Claims 29-30 and 60-61 are also allowable. Therefore, Applicant respectfully requests reconsideration and allowance of Claims 28-30 and 59-61.

Finally, with respect to Claims 31 and 62, *Egner* and *Obhan* fail to disclose an allocation engine operable to generate a bandwidth supply map indicating the available bandwidth at a geo-location area based on bandwidth allocation, a total bandwidth, and an interference contribution bandwidth for a geo-location area, as recited in Claim 31. Claim 62 recites similar, although not identical, elements. The Examiner states that *Obhan* discloses

this limitation. (Final Office Action mailed 2/11/04, Page 5). The language in *Obhan* cited by the Examiner as disclosing this limitation (*Obhan*, Col. 6; Lines 35-67) does not, in fact, disclose a bandwidth supply map, let alone a bandwidth supply map indicating the available bandwidth at a geo-location area based on bandwidth allocation, a total bandwidth, and an interference bandwidth contribution for a geo-location area. The cited passage merely indicates that when spectrum use exceeds a preset threshold, use of the spectrum is de-incentivized by adjusting the cost of the usage to encourage price-sensitive users to discontinue use to free up spectrum resources. (*Obhan*, Col. 6; Lines 57-67). Furthermore, the Examiner has failed to provide any explanation of how, in his opinion, the cited section discloses an allocation engine operable to generate a bandwidth supply map indicating the available bandwidth at a geo-location area based on bandwidth allocation, a total bandwidth, and an interference contribution bandwidth for a geo-location area.

For at least this additional reason, Claims 31 and 62 are allowable over the cited references. Therefore, Applicant respectfully requests reconsideration and allowance of Claims 31 and 62.

CONCLUSION

Applicant has made an earnest attempt to place this case in condition for allowance. For the foregoing reasons, and for other reasons clearly apparent, Applicant respectfully requests full allowance of all pending claims.

If the Examiner feels that a telephone conference would advance prosecution of this Application in any manner, the Examiner is invited to contact Brian W. Oaks, Attorney for Applicant, at the Examiner's at (214) 953-6986.

Although no other fees are believed due, the Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. 02-0384 of Baker Botts L.L.P.

Respectfully submitted,

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